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SUBJECT: IRAQI REFINERIES PRESENT AND FUTURE (CORRECTED COPY)

¶1. (SBU) Summary: Iraq's refineries are plagued by poor maintenance and antiquated design. Modern refineries produce 80% to 90% of a barrel of oil into light or medium distillates, while Iraq's refineries produce between 50% and 55%. This creates large amounts of heavy fuel oil (HFO), which must be sold and transported within the country or exported. Plans to modernize and expand Iraq's refineries are moving slowly mostly due to difficult contracting procedures, a shortage of skilled staff to manage large projects, and are exacerbated by lack of reliable electric power to safely operate high tech process equipment. The Ministry of Oil (MoO) faces an uphill climb to meet its goals of self-sufficiency and higher exports. End Summary

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Iraqi Refineries: Three Operating Companies

¶2. (SBU) Iraqi refining capacity is divided into three operating companies. The North Refinery Company headquartered in the Baiji Oil Refinery (BOR) is led by Director General (DG) Dr. Ali Al-Obaidi. The Midland Refinery Company is headquartered in the Daura Refinery and led by DG Dathar Khashab. The South Refinery Company is headquartered in the Basrah Refinery and led by DG Thaer ¶E. Jaber. All of these companies fall under the Deputy Minister of Oil for Midstream, Ahmad Al-Shamma.

¶3. (SBU) Iraq's design refining capacity within country stands at approximately 740,000 barrels per day (bpd). BOR accounts for more than 40% of this design capacity at 310,000 bpd. The other two large refineries are Daura refinery with a capacity of 90,000 bpd and Basrah refinery at 160,000 bpd. The remaining refineries range from 30,000 to 10,000 bpd capacity

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Design versus Operational Capacity

¶4. (SBU) The difference between design capacity and operational capacity can be great. BOR has an operational capacity approximately 75% of the design capacity. Basrah Refinery's operational capacity is approximately 15% less than its design capacity. This stems primarily from the MoO's inability to bring in spare parts for maintenance, damage caused by unreliable electricity supplies, long-term effects of the sanctions period, and a shortage of highly skilled workers. Total Operational capacity is approximately 65,000 bpd, or 10% lower than design capacity.

¶5. (SBU) In addition to the condition of the refinery, inadequate supplies of oil reduce production. The Daura refinery regularly operates at approximately 50% capacity due to inadequate supplies of crude oil. The Strategic Pipeline can no longer fully fuel all the users along the route. Repairs to the pipeline's pump stations have not progressed and the problem will remain for a number of years to come. Iraq loses approximately 116,000 bpd, or 17% of operational capacity, due to inadequate quantities of crude oil reaching the refineries. Many days, no crude at all is received.

Refineries Lack Modern Technology

¶6. (SBU) Iraq's refineries are mainly simple distilling units. Iraq has only one hydrocracker at BOR, which has not been operational

since 2002. Hydrocrackers allow a refinery to further break down complex carbon molecules and produce more light and medium distillates. Most modern refineries have hydrocracker units. The unit will typically increase production of lighter distillates from approximately 50% to approximately 70% of each barrel of crude oil.

¶7. (SBU) Most modern refineries have a Fluid Catalytic Cracking
Q7. (SBU) Most modern refineries have a Fluid Catalytic Cracking (FCC) unit. The FCC unit has much the same function as the hydrocracker, but adds an extra layer of ability to the refinery. With a hydrocracker and FCC, a refinery can refine 80% to 90% of crude oil into lighter distillates. The MoO has begun the tender process to put bids out for FCC units at the Baiji, Daura, and Basrah refineries, but these are in the earliest of stages and will not be completed until 2016.

HFO Issues: Urgent Need for Refinery Capacity

¶8. (SBU) There is an urgent need for the MoO to address its inability to process HFO through further refining. Currently the MoO exports to Iran, Turkey, Syria, and Jordan via truck, sells domestically at subsidized and un-subsidized prices transporting the HFO via truck, and fuels electricity generation via truck and pipeline. HFO, a heavier distillate, does not move easily via pipelines and does not store readily in tanks. A truck which has transported HFO needs to be thoroughly cleaned before transporting lighter distillates to avoid contamination. All of these issues strain the system and create build-ups of HFO at some refineries, such as the BOR. In the past, refineries have even shut down due to the strain of excess HFO storage and over-production.

The Future of Iraqi Refineries: U.S. and International Firms Help, But it Will Take Time
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¶9. (SBU) In early December 2008, Iraq signed Front End Engineering and Design (FEED) contracts for four new refineries. Two for 150,000 bpd refineries in Kirkuk and Maysan were awarded to the U.S. firm, Shaw, Stone and Webster; one for a 300,000 bpd refinery in Nassariyah to the U.S. firm Foster Wheeler; and one for a 140,000 bpd refinery in Karbala to the French firm Technip. These contracts represent the earliest preliminary design portions of the refinery building process. The companies are not likely to bring personnel to Iraq to conduct the work. MoO officials report that the contracts will take at least 18 months to complete and the refineries will not be completed for five-to-seven years. It is currently unclear whether these designs will include FCC units and hydrocracker units.

¶10. (SBU) The Midland Refining Company is currently building two new refining units in the Daura refinery of 70,000 bpd each. One 70,000 bpd unit should be completed first quarter 2009 and the second early in 2010. The DG anticipates moving some the 10,000 bpd units from Daura to smaller refineries and having Daura's capacity at 210,000 bpd by the end of 2010. The Basrah refinery plans to add an additional 70,000 bpd unit by 2010 and move its 10,000 bpd unit. This will raise Basrah's design capacity to approximately 210,000 bpd. All three of these 70,000 bpd units are being designed and built by Technoexport out of the Czech Republic. These additions and the new refineries under the FEED contracts will approximately double Iraq's refining capacity.

Budget Woes

¶11. (SBU) Recently the Kuwaitis contracted to build a 600,000 bpd refinery with a reported price of over $15 billion. Extrapolating that price for the Iraqi refineries would mean approximately $8 billion for the 300,000 bpd refinery and $4 billion for the two 150,000 bpd refineries and the 140,000 bpd refinery. It is unclear whether the Iraqis can afford $20 billion over the next five-to-seven years from their oil revenue based budget even if oil

prices climb again, given the many other desperate needs in Iraq. Ministry officials stated that they are looking for partners to build the refineries. The officials have said that the only serious offer they have received so far has been one on the Kirkuk refinery but they hope for more bids as the projects are readied.
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